

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (previously presented): A semiconductor device, comprising:
a copper interconnect line buried in an interlayer insulating film provided on a semiconductor substrate; and
a pad area connected to said copper interconnect line, wherein
said pad area comprises:
copper metal integrated with said copper interconnect line; and
aluminum alloy at least partially buried in said copper metal and a bottom surface thereof contacts said interlayer insulating film through said copper metal.

Claim 2 (original): The semiconductor device according to claim 1, wherein
said aluminum alloy is entirely buried in said copper metal.

Claim 3 (canceled)

Claim 4 (original): The semiconductor device according to claim 1, wherein
said pad area comprises a titanium alloy layer provided at least on a surface of
said aluminum alloy buried in said copper metal.

Claim 5 (previously presented): A semiconductor device, comprising:
a copper interconnect line buried in an interlayer insulating film provided on a semiconductor substrate; and

a pad area connected to said copper interconnect line, wherein
said pad area comprises:
copper metal integrated with said copper interconnect line,
aluminum alloy at least partially buried in said copper metal, and
a compound layer provided at least on a surface of said aluminum alloy buried in said
copper metal, said compound layer including titanium alloy, copper and aluminum.

Claim 6 (previously presented): A semiconductor device, comprising:
a copper interconnect line buried in an interlayer insulating film provided on a
semiconductor substrate; and
a pad area connected to said copper interconnect line, wherein
said pad area comprises:
copper metal integrated with said copper interconnect line; and
aluminum alloy contacting said copper metal, said aluminum alloy being at
least partially buried not in said copper metal but in said interlayer insulating film.

Claim 7 (original): The semiconductor device according to claim 6, wherein
said pad area comprises a titanium alloy layer provided at least on a surface of
said aluminum alloy buried in said interlayer insulating film.

Claim 8 (original): The semiconductor device according to claim 6, wherein
said pad area comprises a compound layer provided at least on a surface of said aluminum
alloy buried in said interlayer insulating film, said compound layer including titanium alloy,
copper and aluminum.

Claim 9 (currently amended): A method of manufacturing a semiconductor device, comprising the steps of:

(a) defining a trench in an interlayer insulating film to form an interconnect line and a pad area, said interlayer insulating film being provided on a semiconductor substrate;

(b) depositing copper over said semiconductor substrate to the extent that said trench to form said pad area is not totally filled;

(c) after said step (b), ~~depositing~~ depositing titanium alloy over said semiconductor substrate to the extent that said trench to form said pad area is not totally filled;

(d) after said step (c), depositing aluminum alloy over said semiconductor substrate, to completely fill said trench to form said pad area;

(e) performing thermal processing to cause reaction between said titanium alloy, said copper and said aluminum alloy; and

(f) removing said copper, said titanium alloy and said aluminum alloy while keeping said copper, said titanium alloy and said aluminum alloy in said trench to remain, to form said interconnect line and said pad area in said trench.

Claims 10-11 (canceled)

Claim 12 (previously presented): A method of manufacturing a semiconductor device, comprising the steps of:

(a) forming a copper interconnect line by a damascene process to be buried in an interlayer insulating film provided on a semiconductor substrate;

(b) after said step (a), defining an opening in said interlayer insulating film in

such a manner that said opening is in contact with said buried interconnect line;

(c) depositing aluminum alloy to completely fill said opening; and

(d) removing said aluminum alloy while keeping said aluminum alloy at least in said opening to remain, to form a pad area including said aluminum alloy.

Claim 13 (original): The method according to claim 12, wherein
said buried interconnect line formed in said step (a) has an annular shape
surrounding said opening defined in said step (b).

Claim 14 (original): The method according to claim 12, further comprising the step
of:

(e) between said steps (b) and (c), depositing titanium alloy over said semiconductor
substrate to the extent that said opening is not completely filled, wherein

said step (d) further removes said titanium alloy while keeping said titanium alloy in
said opening to remain.

Claim 15 (original): The method according to claim 14, further comprising the step
of:

(f) after said step (c), performing thermal processing to cause reaction between
said titanium alloy, said copper and said aluminum alloy.